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Zero Retries is a unique, quirky little highly independent, opinionated, self-published email newsletter about technological innovation in Amateur Radio, for a self-selecting niche audience. It's free (as in beer) to subscribe.

About Zero Retries

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Pseudosponsor - AMSAT Space Symposium and Annual General Meeting

This issue of Zero Retries is pseudosponsored by the 40th AMSAT Space Symposium and Annual General Meeting on Friday 2022-10-21 and Saturday, 2022-10-22 in Bloomington, Minnesota, USA.

Request To Send

In a sense, I'm "recycling" the themes of Zero Retries 0064 in discussing DCC 2022 and Digital Library of Amateur Radio & Communications again.

Despite it being a beautiful Fall weekend here in Bellingham, Washington, USA and the temptation of the Washington State QSO Party (aka The Salmon Run) which a lot of Amateur Radio friends here in Whatcom County participated in, I spent much of last weekend indoors watching the live (YouTube) stream of Digital Communications Conference 2022. Fortunately the DCC was held in the Eastern timezone, so when it ended around 16:00 Eastern, I still had hours of Bellingham sunshine remaining. Thus I didn't feel too guilty for not being outdoors all day for one of these last few dry weekends before the Western Washington wet season begins.

I'm also getting excited about readying my personal donations of Amateur Radio (and some "communications" material) to the Digital Library of Amateur Radio & Communications - see below.

de Steve N8GNJ

Digital Communications Conference 2022 Recap

*This is a highly subjective recap from **my** perspective, **not** a comprehensive review.*

My kudos to the entire team that put on Digital Communications Conference (DCC) 2022. It was one of those rare hybrid in-person and online events that seemed to work equally well for the in-person participants and the online viewers. I really enjoyed watching all three days of DCC 2022, and I learned a lot.

You can catch up on the fun - currently the Youtube livestreams for Friday, Saturday, and Sunday are available. I'm told each of these will be edited into individual presentations, and the Saturday evening banquet talk by Rosy Schechter KJ7RYV, Executive Director of ARDC, is now available. If you'd like to hear a bit about the behind-the-scenes of the video production for DCC 2022, see HamRadioNow's 2022-09-18 episode.

The DCC is a fantastic example of Technological Innovation in Amateur Radio. There is a video record, hopefully TAPR will post the slide decks for the presentations, and there is also the DCC 2022 Proceedings for posterity in both PDF and paperback book. My book arrived this week, and it's an annual treat that I look forward in taking my time reading through the proceedings papers. Not all presentations make it into the Proceedings, and not all papers in the Proceedings (like mine) had a corresponding presentation.

Some highlights after looking over the schedule as a recap…

- I look forward to the next issue of the TAPR PSR Newsletter to see what was discussed at the TAPR Board meeting on Thursday preceding the DCC.

- Most of the Friday talks were associated with Amateur Radio Citizen Science Investigation (HamSCI), and they were all good. It is great that the DCC provides opportunities for deep-dive talks and for students to gain valuable experience in publishing papers and doing presentations in front of a technical audience.

- **TangerineSDR Prototype Hardware and MagnetoPI Production Status** by Scotty Cowling, WA2DFI was a great technical presentation about TAPR's progress on the TangerineSDR (TSDR). At the moment, it's a Software Defined Receiver, but there are plans to implement a transmitter. To me, if you look at the website, it's a bit underwhelming - developing (yet another) Software Defined Radio. But diving deeper, the TSDR is focused on scientific investigation rather than Amateur Radio operating or generic receiving. In this presentation, I learned that there's a fundamental difference with TSDR - they're using a large enough Floating Point Gate Array (FPGA) that TSDR will receive 100 kHz through 54 MHz. OK… lots of Software Defined Receivers can do that. But TSDR receives all of that 53.9 MHz *simultaneously* - not tuning to a portion of that range like conventional SD receivers do. *That…* gets interesting! It was pointed out to me that's not a unique capability, there are other radios that do the same thing, but this one is open source hardware, open source FPGA code, and open source software. At the moment TSDR production is constrained by unavailability of their chosen FPGA, but there's hope that shortage will soon ease. I suspect the approach pioneered by TGSDR will be the basis for most Amateur Radio HF activity by the end of the decade - receive the HF band - *all of the HF band*, and let the computer sort out what it is you want to receive. The more compute power you can make available, the better the receive capability.

- **Claude Shannon's Radiotelegraphy: Progress in Coherent CW** by David Kazdan AD8Y was interesting. I had heard of Coherent CW but had not taken the time to understand it. Like I've mentioned here in Zero Retries, AD8Y feels there is potentially a lot of value in revisiting older technologies, projects, etc. that were abandoned or surpassed and take a fresh look at them through the lens of "is this practical now with current technology"?

- Similarly, **Amateur Communications Below 9 kHz: The Dreamer's Band and The New EbNaut Digital Mode** by Jonathan Rizzo KC3EEY was a subject I'd heard of, but had not taken the time to understand, and now I understand it a bit better.

- During the **Lightning Talks**, Phil Karn KA9Q did a presentation about an interesting use of his ka9q-radio software - **FM Repeater with Multiple Inputs**. He explained that AMSAT's use of linear transponders on Amateur Radio satellites have not been able to solve the problem of transmitted power imbalance - if one signal is significantly more powerful than other transmissions in the passband, most of the transponder's transmit power is used for the loudest signal. KA9Q proposes that listening on multiple discrete frequencies simultaneously might solve this power imbalance problem. This is yet another "old problem potentially solved with current technology".

- Tom McDermott N5EG's presentation **Starlink AREDN, and Networking** was a masterclass in understanding the issues involved in trying to use Internet via Starlink if you wanted to host servers, such as AREDN via Starlink. Starlink uses "Carrier Grade Network Address Translation" (CGNAT) and the problems that creates for anything other than typical Internet access.

- Sunday was devoted to the stories of five recipients of ARDC grants - University of Scranton ARC W3USR, Bridgerland ARC, National Radio Astronomy Observatory, M-17 Project, and ARISS. All of these were compelling stories about how ARDC grants made a profound difference such as creating clubs and programs from scratch, paying for development equipment, and in the case of ARISS, ensuring stable funding for five years and developing new programs to enhance the ARISS experience in the classroom.

Again, I think that DCC 2022 was a great success and I look forward to DCC 2023 and possibly attending in person. As is always the case, TAPR needs local hosts to help host in-person DCCs. Hopefully next year TAPR can return to their cooperation with GNU Radio Confernce and those two complementary events can be held back to back in the same venue.

If you agree that the DCC is valuable for Amateur Radio, the best way you can support the continuation of the DCC is to simply join TAPR as a member for $30 annually (as I have). One strong recommendation I can offer for TAPR membership is that TAPR, unlike other membership organizations, *does not hold its newsletter hostage behind a paywall only for the benefit of paid members*. It was a leap of faith for TAPR to publish PSR without a paywall, and I think that is laudable and should be rewarded.

N8GNJ Update on Digital Library of Amateur Radio & Communications

As far as I'm aware, the first truly public pronouncement that Internet Archive's Digital Library of Amateur Radio & Communication (DLARC) is accepting donations of material was a video clip by DLARC's Kay Savetz K6KJN which was played during the Lightning Talks at DCC 2023 on Saturday.

If you want to share this video clip, for easy copy and paste: https://youtu.be/ZNPtKMoGagg.

As I mentioned in passing in Zero Retries 0064, I'm working to donate items from my collection of Amateur Radio media to DLARC. As in, I plan to donate almost all of my collection of Amateur Radio media to DLARC. I've been accumulating this media for decades now, with only a vague idea of what to do with it, only that "this is too valuable to send to recycling or landfill". (Calling it a "collection" would dignify it more than it deserves.) For example, at hamfests, I'll browse through boxes sitting under tables for unique and interesting books, magazines, etc. I've found proceedings of microwave and space symposiums, etc. and paid $1 each for them. Some I've never actually read, but they went on bookshelves for safe keeping for "doing something, eventually).

Permit me a short diversion here that might be instructive. Working with K6KJN on DLARC isn't my first interaction with donating material to Internet Archive. My first interaction was to ship to Internet Archive (at my expense) some issues of Boardwatch Magazine that Internet Archive did not have in their collection of that magazine. These were extra issues that I had, and it was an experiment to see if donated material such as mine actually gets scanned and made available online… or just accumulates in a warehouse waiting for a time (that will never come) when Internet Archive is "caught up" having digitized every piece of media donated to them. My experience was the latter - my donated issues of Boardwatch still haven't shown up on Internet Archive (at least, had not when last I checked, many months ago).

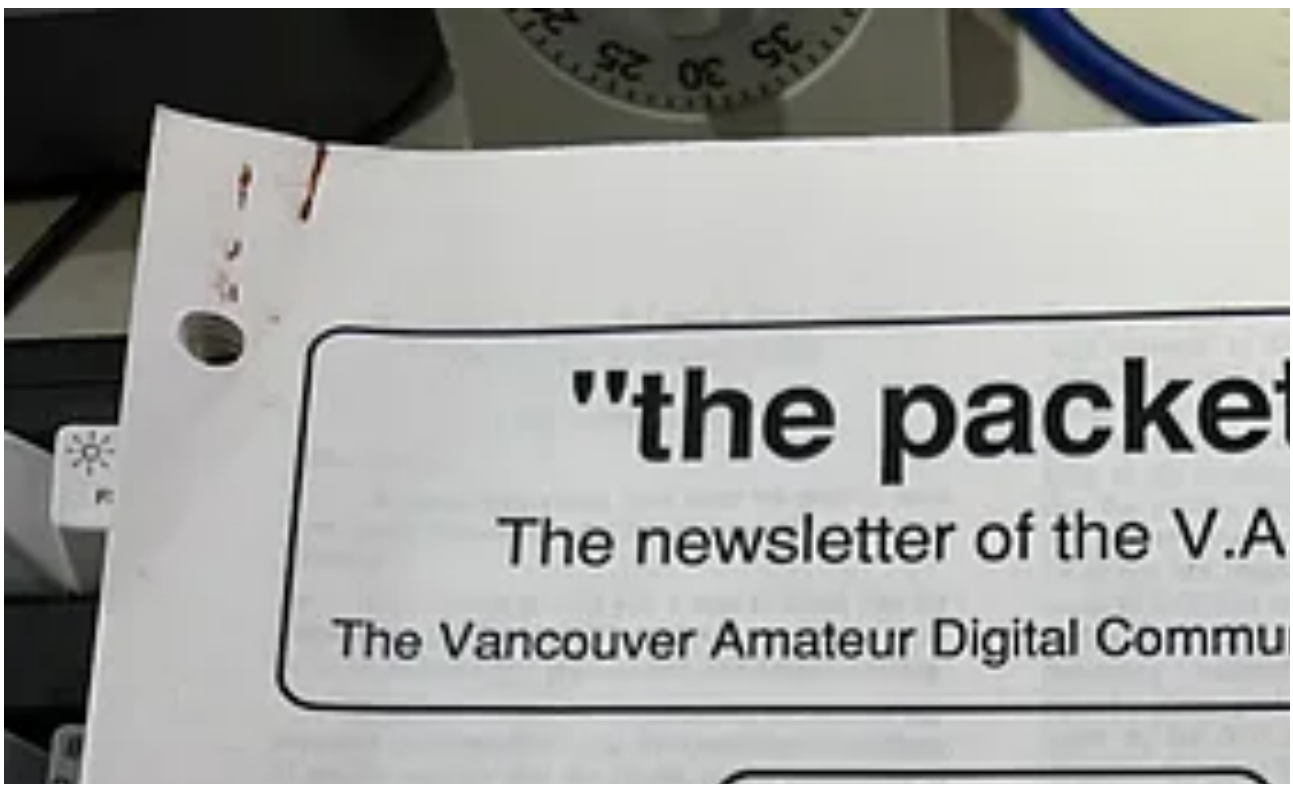
My second interaction with Internet Archive was to use my double-sided sheet feed scanner, the now-discontinued Fujitsu ScanSnap S1500M to begin scanning some of my ~~collection~~ *accumulation* of Amateur Radio material and uploading the scans to Internet Archive as an individual contributor. I had more success than my first experience - my uploads were discoverable at least. But scanning at (even minor) scale is a lot of work, and while my poor S1500M *could* scan at 600 dots per inch (DPI) into a lossless TIFF image file…

- It's slow.
- Old paper that has been casually stored usually jams, and you just about want to cry when the S1500M's powerful motor and rollers crunch up a unique piece of paper during a misfeed.
- 600 DPI TIFFs are big, especially if you're scanning an entire magazine.
- Uploads of big files are slow.
- Inevitably, dust accumulates under the scanning head and creates streaks on the scan that are very visible at 600 DPI. You can't (reasonably) disassemble the scanning head on the S1500M to clean out the dust. It was designed as a office scanner for quick 300 DPI scans of documents and images to PDFs. For that, it works great.
- Internet Archive requests that you retain the originals (even if modified such as shearing the spine off a magazine for sheet feed scanning) for archival purposes. This is especially important with Controlled Digital Lending. And you don't want to pay the postage to send off just a few items at a time, so you end up doing the work to scan, and you haven't lightened your accumulation much at all.

So… I tried it for a few weeks and concluded that my scanning of my accumulation of Amateur Radio material wasn't that viable unless I purchased a better scanner and dedicated the equivalent of a part-time job to the task.

But *now there is DLARC*!

In my situation, nearly all of my accumulation of Amateur Radio media will be boxed up for donation to DLARC in the next few months. My personal goal is to beat the anticipated rush when DLARC becomes more widely known, though I'm working against myself on that by helping DLARC become more widely known by offering introductions.



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The Vancouver Amateur Digital Commun
9531 Odlin Road, Richmond, B.C., Cana

Image by Steve Stroh N8GNJ

One of the joys of this third attempt at working with Internet Archive is that now I'm making a concerted effort to organize my accumulation of Amateur Radio material, thus I'm rediscovering some forgotten gems. One such gem is a copy of Issue 10, September 1985 of **"the packet"**, the newsletter of the Vancouver Amateur Digital Communications Group (VADCG). I *cannot* find any online copies of "the packet" and to date, none of my Amateur Radio buddies have copies. I hope that other copies of "the packet" come to light eventually.

That "the packet" may be lost to history is an example of how much stands to be lost if there wasn't an entity like IA and DLARC that's "big, organized, and funded" to save items like "the packet" for posterity. Glancing through the 38 pages of Issue 10 of "the packet", I came across an invaluable article - **AMATEUR PACKET RADIO DEVELOPMENT - A Pioneer's Perspective by Doug Lockhart VE7APU**. VE7APU reaches back in history to the initial development of Amateur Radio Packet Radio by three groups in Canada, in Montreal, Ottawa, and Vancouver and explains the history and the cooperative effort of the three groups. Once this issue of "the packet" is available via DLARC, that history will be much more discoverable and citable.

Discovering that article was especially poignant because I learned that VE7APU became a Silent Keyboard in 2017. When moving to Bellingham, I had hoped to visit Vancouver BC and try to meet VE7APU, but that idea came a few years too late. Now all that's left is VE7APU's contributions in the VADCG TNC, the memory of VADCG, and articles such as "… A Pioneer's Perspective".

If any Zero Retries readers know of anyone who might have copies of "the packet" or any other such material, I urge you to get in touch with Kay Savetz K6KJN to discuss donations of material to DLARC. Kay's email is **kay@archive.org**.

It's another departure from the norms of Amateur Radio newsletterage that it seems appropriate to mention my preference for Home Depot Heavy Duty Extra Small Moving Boxes to ship my donations to Internet Archive for DLARC. These boxes are 15" L x 10" W x 12" deep, and they're cheap at < $2 each. During my recent move, I learned the hard way that using boxes larger than that to package "dense paper material" is a recipe for a sore back.

Anytone BT-01 - New "Radio without the RF" Device

Image courtesy of Powerwerx (linked below)

At first glance, the Anytone BT-01 Mobile Bluetooth Speaker Mic for AT-D578UV Models with Bluetooth looks like a gimmick (at least it did to me). Specifically, I thought it was yet another "radio" that actually used Internet connectivity. But dive a bit deeper, and you understand that's not the case and you start seeing the possibilities.

It's essentially a remote via wireless (Bluetooth) front panel, speaker, and microphone for models of Anytone radios that have built-in Bluetooth.

For me, the BT-01 nicely solves a problem in N8GNJ Labs that portable radios don't work well inside the Labs because it has steel sides, aluminum clad garage doors, and a metal roof - a good Faraday Cage. So I have an external antenna and "base station" radios, but those radios are in a specific spot in the Labs that I'm usually not near unless I'm doing a radio activity. Thus, I miss out on a lot of opportunities for casual chatting on the local repeaters.

Thus the BT-01 solves my problem because it's basically all the important user features of a base station radio, including the display of frequencies, etc.

and it's portable so I can carry it with me while I'm puttering about in the Labs away from the radios, but still have benefit of the higher power and external antenna of the base station.

My BT-01 is now on backlog order, so when they are released in the next few months, I should get one in the near future.

Data Communications Adapter for TYT TH-9000D Radio

Image courtesy of RPC Electronics, LLC

During his DCC 2022 presentation, Jason Rausch K4APR made passing mention of his small company RPC Electronics, LLC. Of course, I had to check it out and I was delighted to find the TYT TH-9000D Mini Din Packet Adapter which is a very handy modification for the TYT TH-9000D because it doesn't come with the "plug and play" 6-pin MiniDIN connector for Amateur Radio Data Communications. I wrote about the easy modification of the TH-9000D for data communications in Zero Retries 0018 - TYT TH 9000D Monoband Radios Can Be Modified for Data and Zero Retries 0019 - A Few Bits More on the TYT TH-9000D.

Zero Retries Sponsorships

The Zero Retries sponsorship model is *evolving*, but it's initially inspired by the Daring Fireball blog's sponsorship model (other than this sponsorship cost). Some initial points:

Sponsorship of Zero Retries is only available to "Zero Retries Interesting" companies, organizations, individuals, and projects. Ideally, a Zero Retries sponsor is involved in Amateur Radio, but that's not an absolute requirement. If an individual or company would like to sponsor Zero Retries, but prefer to remain anonymous, that's acceptable, but the "Zero Retries Interesting" criteria still apply.

- Sponsorships are limited to a *brief* mention in Zero Retries - a few sentences at most (but prominently displayed). Example - "WhizzyPacket is proud to sponsor this week's Zero Retries". More targeted sponsorship messages are acceptable, such as "WhizzyPacket is looking for a few good engineers - click here".
- A sponsorship is for *one* weekly issue of Zero Retries and is exclusive - one sponsor per week. Sequential sponsorships are available - as much as three months of sponsorship is acceptable. Longer than three months, let's discuss it.
- Lastly, although it kind of defeats the overt purpose of sponsorship, if a *Zero Retries Interesting company, organization, individual, or project cannot afford to pay for a sponsorship*, but wants / needs to "get the word out", Zero Retries can probably work something out. In fact, if there are gaps in sponsorships, I'll probably create some gratis sponsorship messages.

If you are interested in sponsoring Zero Retries, please reach out - it's early days. More importantly, if you know of a company, organization, project, or individual that you think could / would / should sponsor Zero Retries, *please point out Zero Retries to that entity*.

Join the *Fun* on Amateur Radio

If you're not yet licensed as an Amateur Radio Operator, and would like to join the fun by *literally having a license to experiment with radio technology*, check out
Join the Fun on Amateur Radio for some pointers.

Closing the Channel

In its mission to highlight technological innovation in Amateur Radio, promote Amateur Radio to techies as a literal license to experiment with wireless technology, and make Amateur Radio more relevant to society in the 2020s and beyond, Zero Retries is published via email and web, and is available to anyone at no cost. Zero Retries is proud *not to participate* in the Amateur Radio Publishing Industrial Complex, which hides Amateur Radio content behind paywalls.

My ongoing ***Thanks*** to:

- Tina Stroh KD7WSF for, well, *everything!*
- Pseudostaffer Dan Romanchik KB6NU for continuing to spot, and write about "Zero Retries Interesting" items on his blog that I don't spot on my own.
- Amateur Radio Weekly and Southgate Amateur Radio News consistently surface "Zero Retries Interesting" stories.
- The Substack email publishing platform makes Zero Retries possible. I recommend it for publishing newsletters.

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Leave a comment

Email issues of Zero Retries are "instrumented" by Substack to gather basic statistics about opens, clicking links, etc. I don't use such information in any way other than seeing that most subscribers actually do read Zero Retries.

More bits from Steve Stroh N8GNJ:

- SuperPacket blog - *Discussing new generations of Amateur Radio Data Communications - beyond Packet Radio (a precursor to Zero Retries)*
- N8GNJ blog - *Amateur Radio Station N8GNJ and the mad science experiments at N8GNJ Labs - Bellingham, Washington, USA*

Thanks for reading!
Steve Stroh N8GNJ / WRPS598 (He / Him / His)
These bits were handcrafted in beautiful Bellingham, Washington, USA
2022-09-23

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